The

STEN MKII

Complete machine plans

STEN SUBMACHINE GUN, 9-millimetre submachine gun that became the standard such weapon in the British Commonwealth armed forces during World War II. Moreover, hundreds of thousands of Sten guns were provided to underground movements everywhere in Europe during that war. The gun was so ubiquitous that its name became all but a generic term for submachine gun. The Sten gun remained in service until the late 1950s.

The most common version of the Sten gun was 30 inches (76.2 cm) long with a barrel of 7.5 inches (19 cm). It fired at a rate of 550 rounds per minute, and it had a 32-round box magazine that, however, tended to jam if more than 30 rounds were loaded. The butt was a steel frame that, with the barrel, could be removed without difficulty so that the disassembled weapon could be easily hidden. Its weight was just over six pounds (2.7 kg) unloaded.

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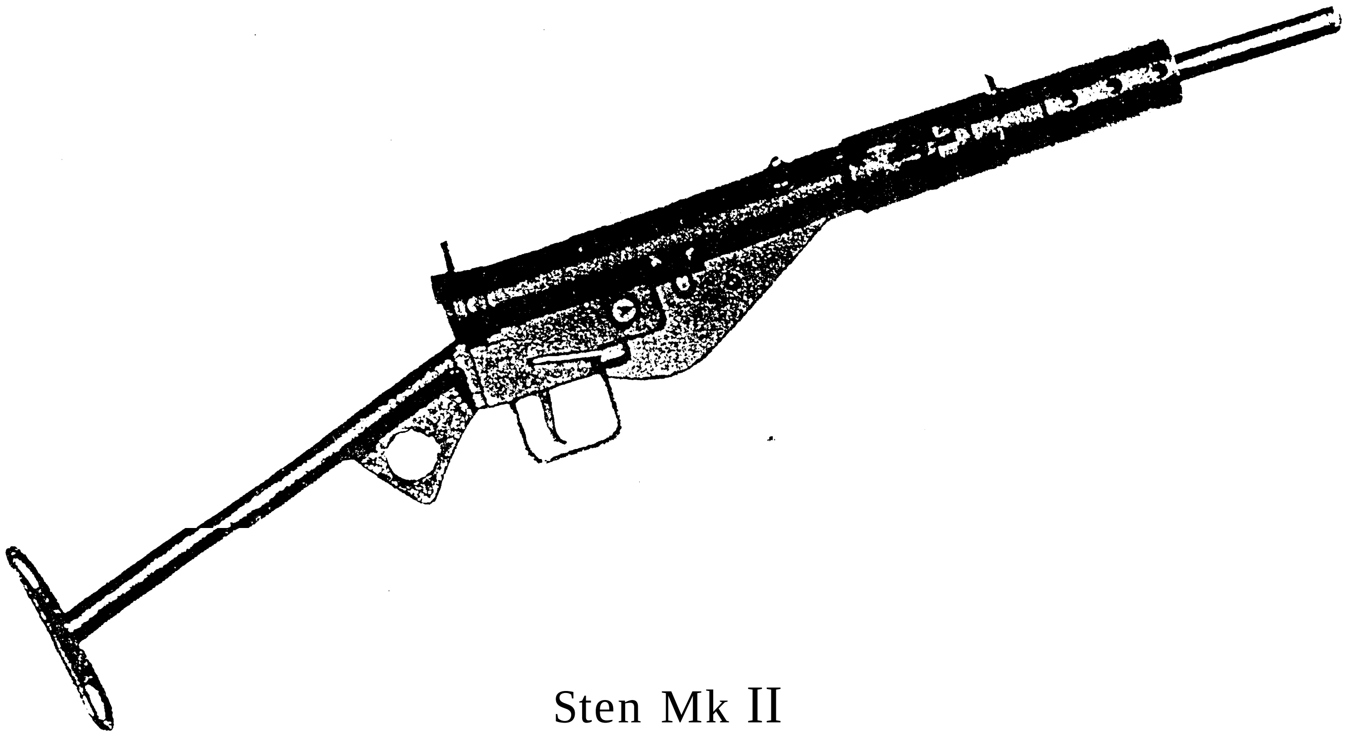


Sten Mk II

PARTS LIST

1. Barrel
2. Barrel sleeve
3. Barrel sleeve lock
4. Barrel sleeve lock spring
5. Front sight
6. Barrel bushing
7. Receiver tube
8. Receiver cap
9. Trigger housing
10. Butt stock assembly: stock tubing
    butt plate
    stock grip
    stock ring

11. Magazine housing
12. Magazine housing spacer
13. Magazine housing spacer screw
14. Magazine latch
15. Magazine latch spring

16. Trigger
17. Trigger spring
18. Trigger pin
19. Disconnector
20. Disconnector pin
21. Selector
22. Selector spring
23. Selector plunger (2)

24. Sear
25. Sear spring
26. Sear pin

27. Bolt
28. Firing pin
29. Extractor
30. Extractor spring
31. Extractor pin
32. Bolt handle

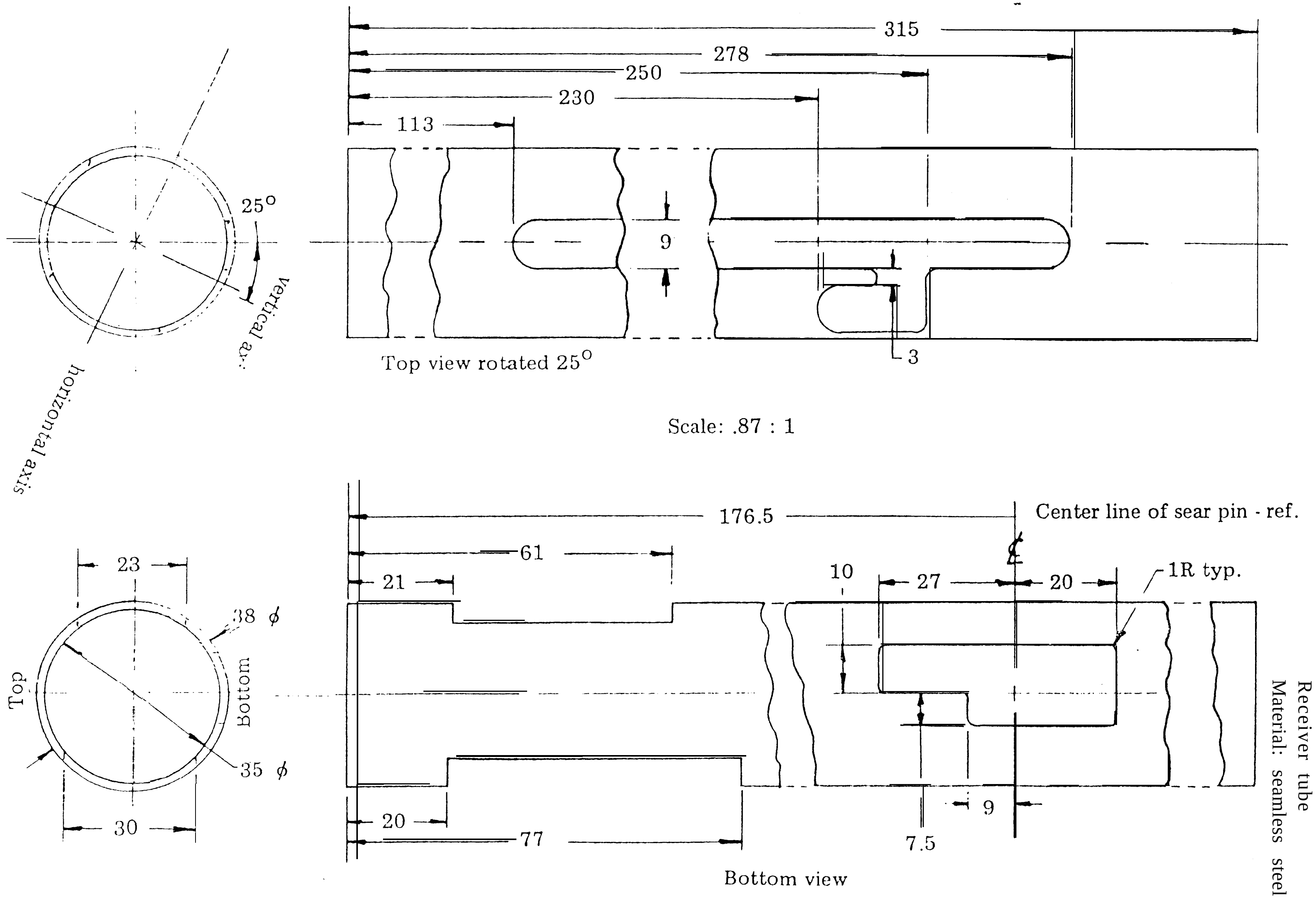
33. Closing spring
34. Closing spring cup
35. Trigger housing cover
36. Trigger housing cover screw (2)

37. Magazine housing
38. Magazine follower
39. Magazine spring
40. Magazine spring latch
41. Magazine bottom

42. Rear sight

NOTES:

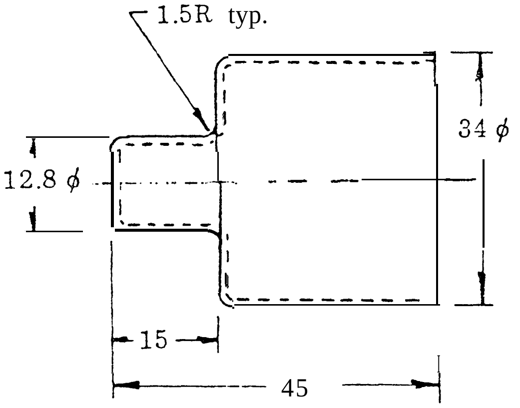
1. Bolt stopping surface on barrel is lmm forward of magazine well slot.
2. Bolt stroke is



Receiver tube
Material: seamless steel tubing

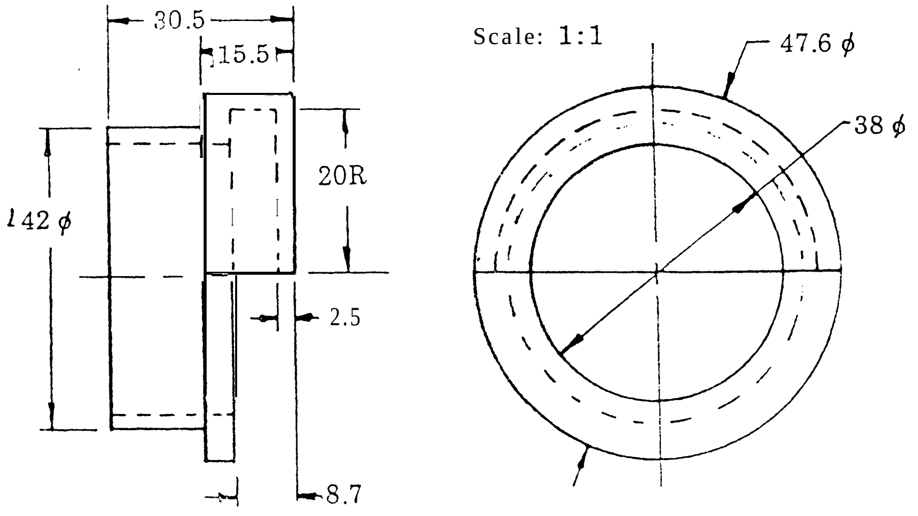
Main spring cap
Material: 1mm stock

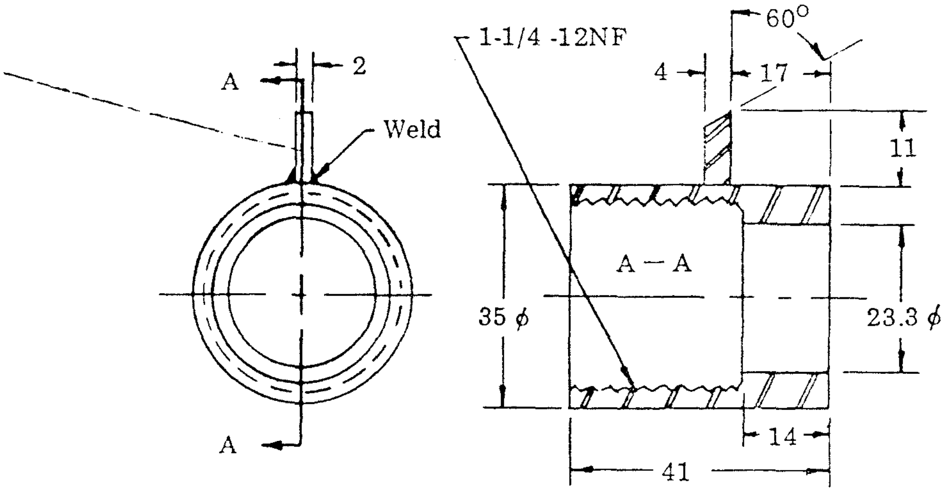
Scale: 1:1



Receiver rear end bushing
Material: AISI 1010 or equivalent

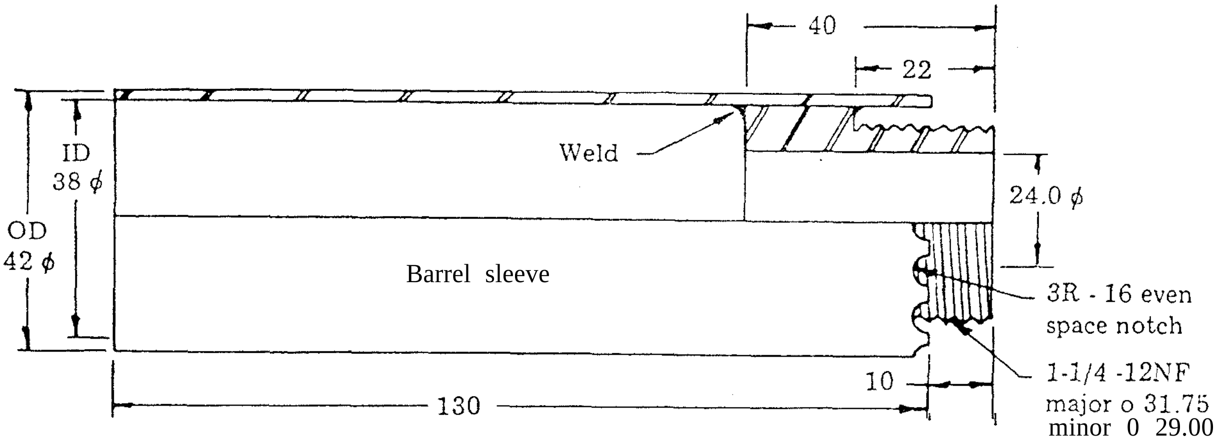
Scale: 1:1

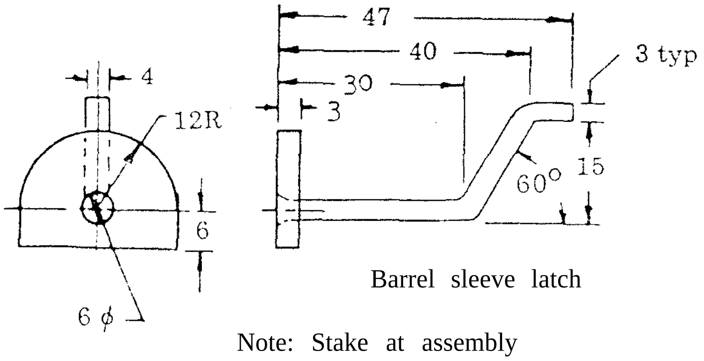




Barrel hushing
Material: 4140

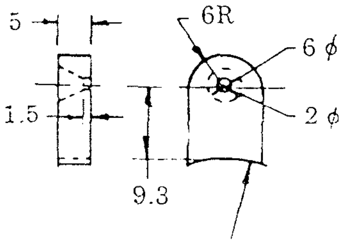
Scale:





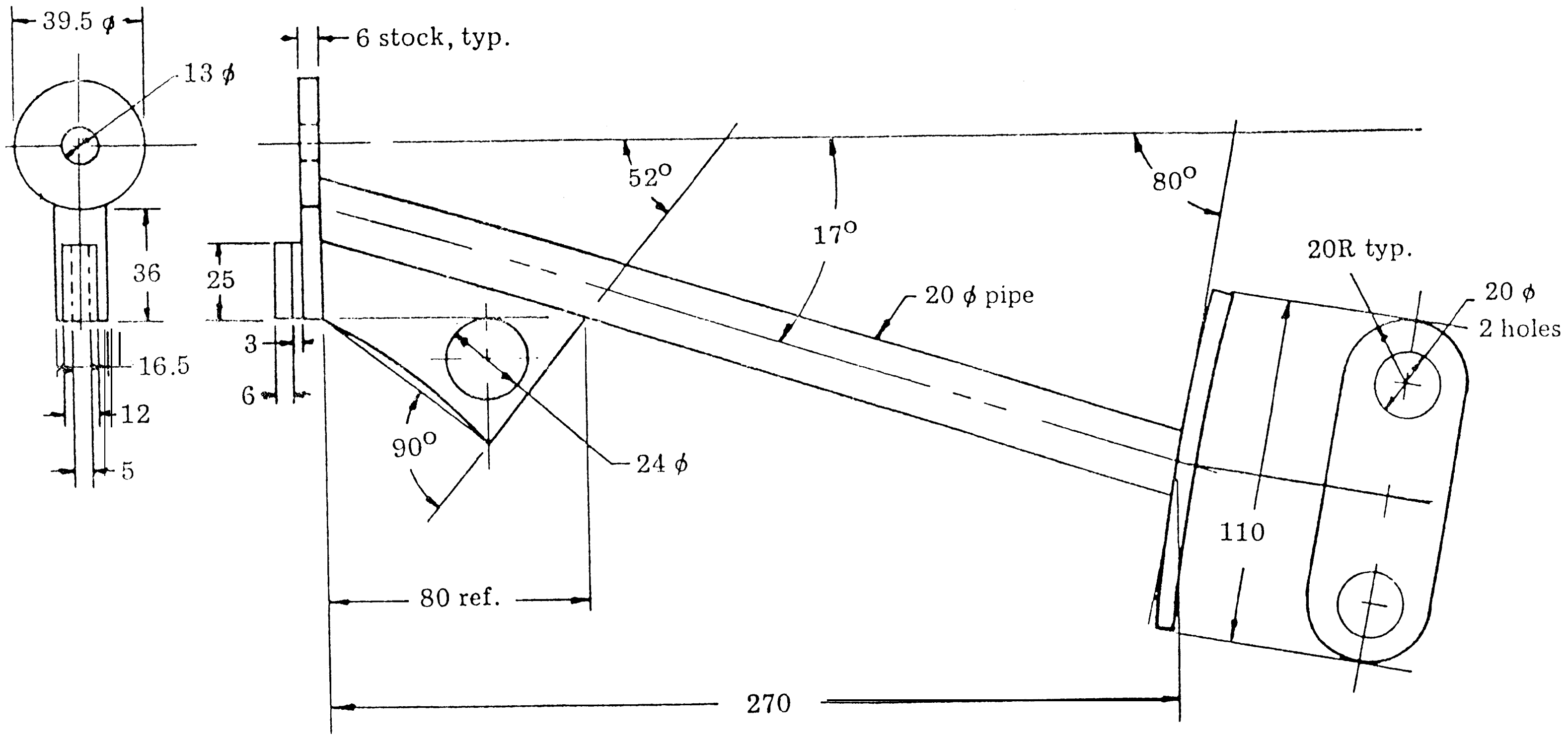
Barrel sleeve latch

Note: Stake at assembly
with magazine housing



Rear sight

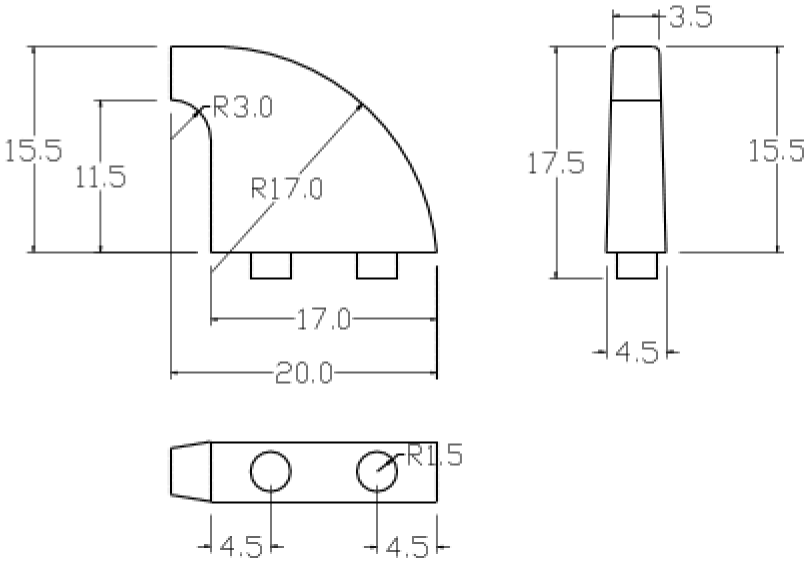
Butt-stock assembly
Material: low carbon steel
or aluminum, welded construction



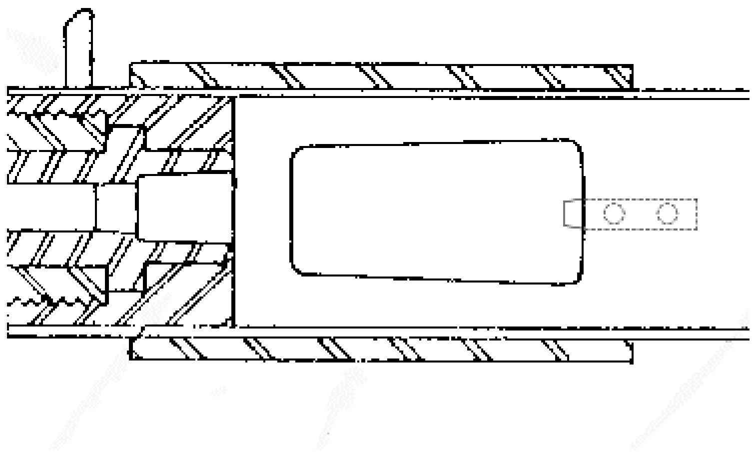
Ejector

Material: 4140 steel, hardened.

Construction: Mill, or filed from stock, pins shown can be replaced by slotting the receiver and welding in place, although harder to position

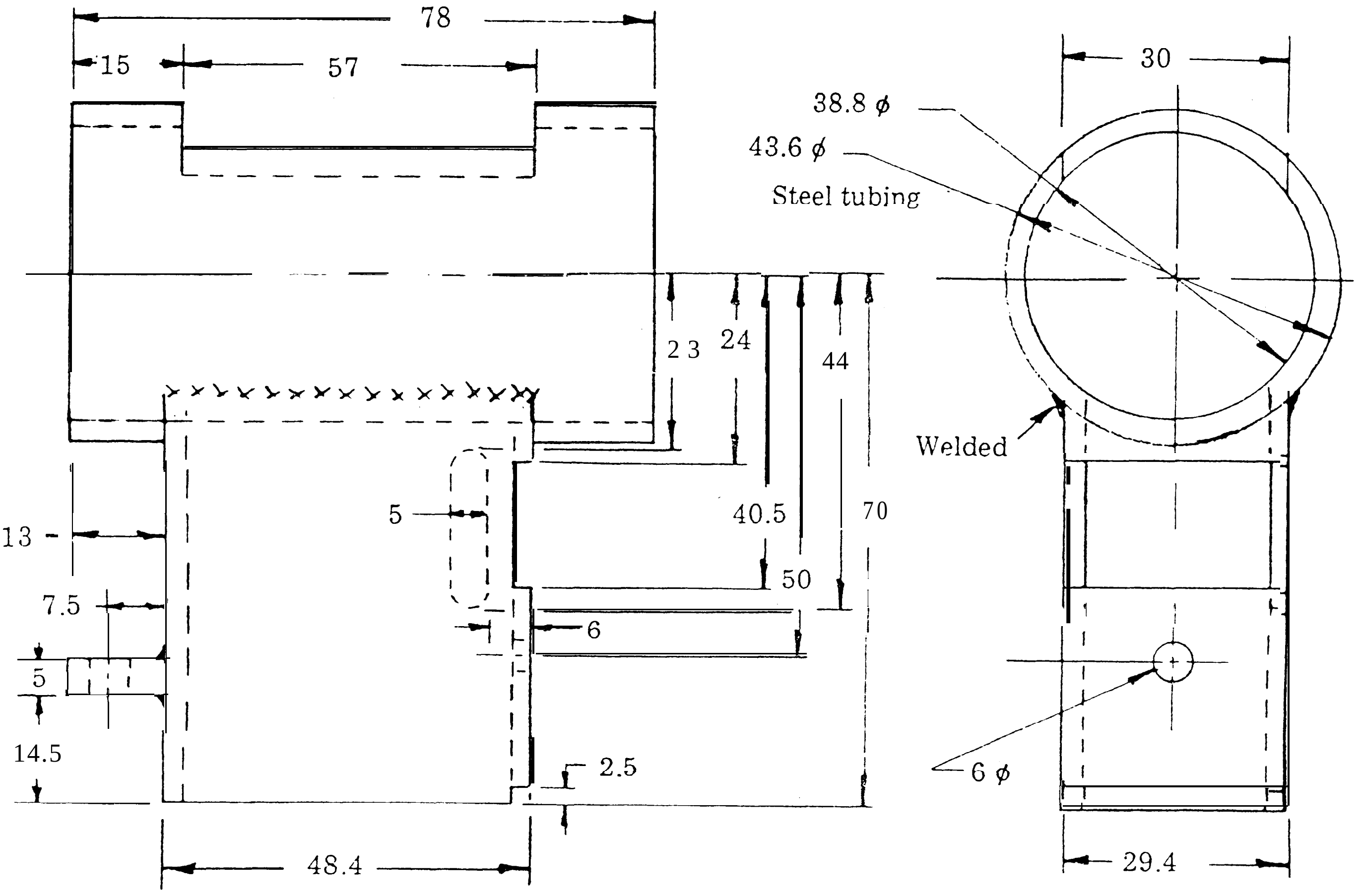


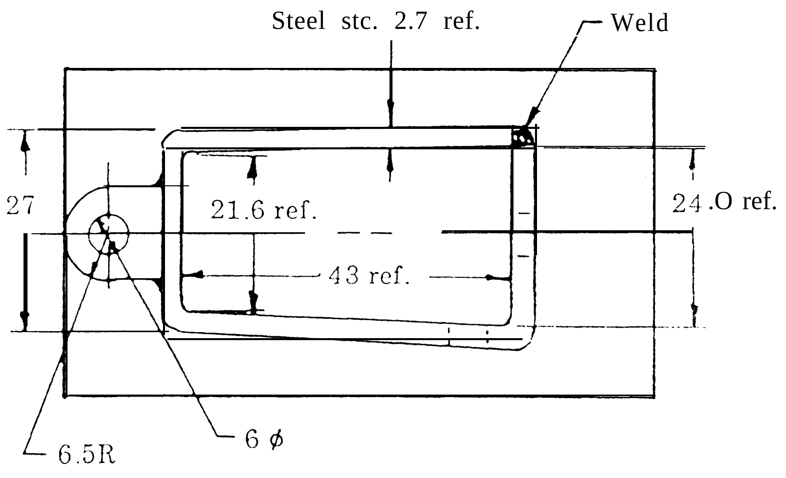
The ejector is positioned central with the magazine apeture of the receiver tube as shown. Construction can vary, here an ejector supported by two pins through the receiver tube is welded in place.



Magazine housing
Material: as noted

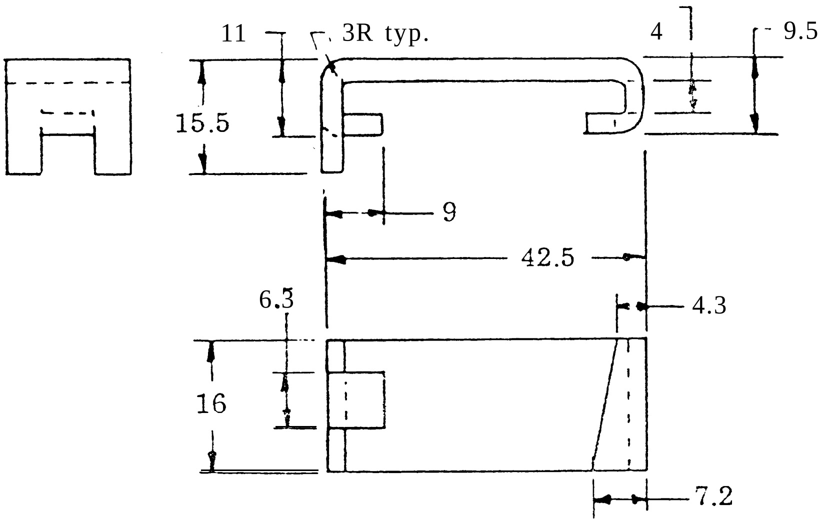
Scale: 1 : 1





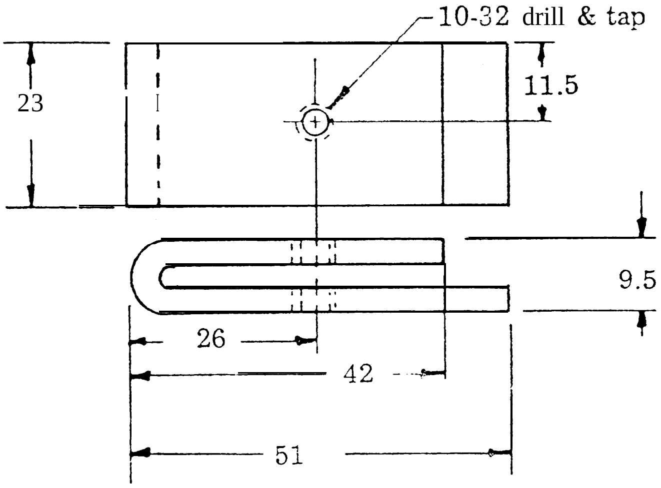
Magazine latch
Material: AISI 1010 or equivalent
2.7mm stock. Case harden 0.1mm deep

Scale: 1:1

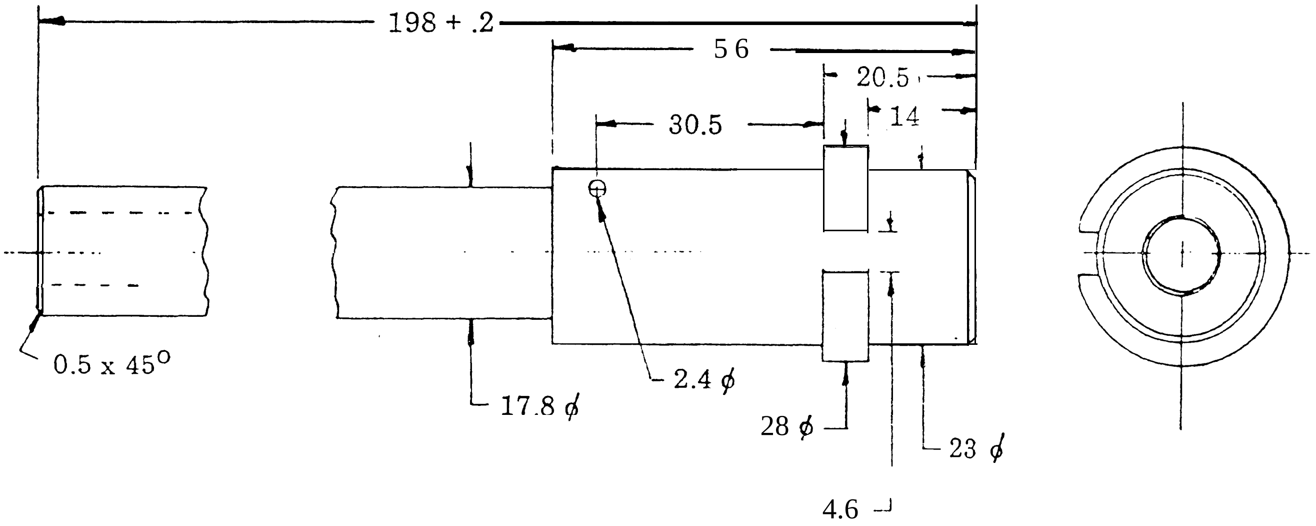


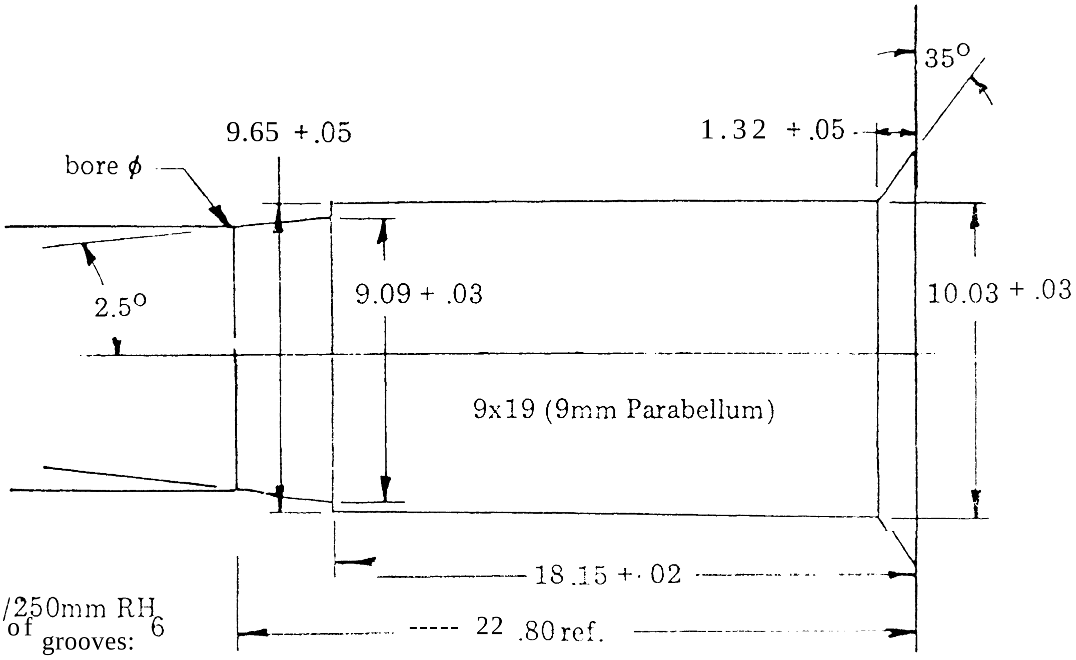
Magazine housing spacer
Material: AISI 1010 or equivalent
3mm stock. Heat treat: none

Scale: 1:1



Barrel
Material: AISI 4140
Harden to: Br 255-277





Twist: 1/250mm RH
Number of grooves: 6
Groove width: 2.5 +.02
Bore diameter: 8.84 + .02
Rifling diameter: 9.06 + .05

STEN Mk II SPECIFICATIONS

1. Cartridge:	9mm Parabellum	
	Bullet weight	116 grains
	Powder weight	6 grains
	Muzzle velocity	1400 ft./sec.
2. Recoil Spring:	Wire diameter	0.067 in,
	Spring OD	1.00 in.
	Active coils	15
	Free length	9.40 in.
	Initial length	6.80 in.
	Final length	3.20 in.
	Work stroke	3.60 in.
3. Bolt:	Weight (including extractor)	1.327 ib. (9290 grains)
	Cocking handle	0.077 lb. (540 grains)
Total recoiling weight:		1.404 lb. (9830 grains)
	Bolt maximum dia.	1.381 in.
	Bolt overall dia.	5.75 in.
	Bolt body length	4.21 in.

SUGGESTED STEN MANUFACTURING MODIFICATIONS

1. Select suitable lightwall steel tubing which is commercially available. For example, a fence post pipe (galvanized) is 38.5mm OD and 35.0mm ID, most suitable for use as a receive:.

2. Eliminate barrei sleeve.

3. Weld barrel bushing into the front end of the receiver for simple, permanent assembly.

4. Turn barrel blank OD (outside diameter) without any shoulder, fit the barrel in the bushing by sliding fit.

5. Fasten the barrel in the bushing by two roll pins of 3/16" diameter, or equivalent.

6. Turn the bolt OD to fit the receiver ID.

7. The external portion of the cocking handle (sticking out of the receiver) may be a straight 8.8mm OD, the same as the inside.

8. The trigger housing cover acts only as a guard against dirt entering the trigger assembly. This cover can be eliminated or made from plastic.

9. All pins can be roll pins of standard commercial size, or pieces of drill rod.

10. All springs can be of a standard commercial size.

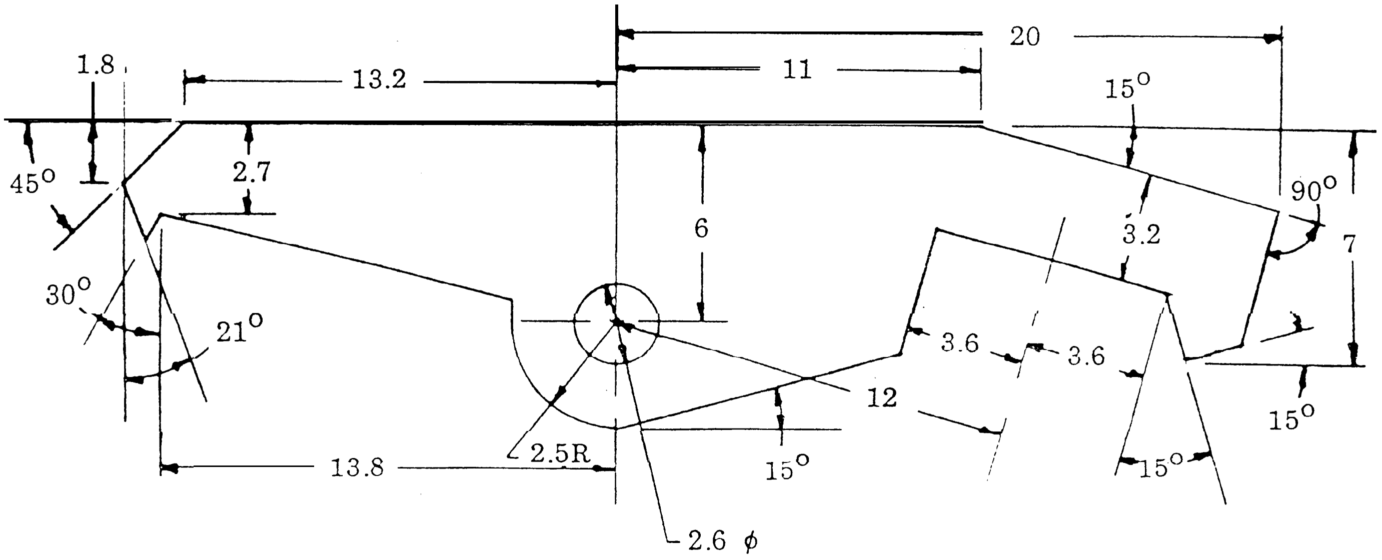
11. Trigger material may be aluminum or plastic, side tabs may be replaced by spacers or washers to keep the trigger located neutrally.

12. 1-1/4" diameter nominal size galvanized pipe, schedule 40 is suitable for a modified receiver:
    - OD: 42.2mm
    - ID: 35.05mm
    - Wall thickness: 3.55mm

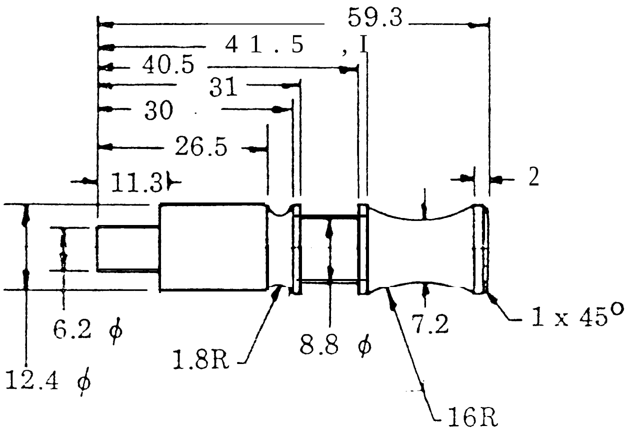
Note: A 1" galvanized pipe fits loosely inside a 1-1/4" pipe and can be welded as a filler-spacer where needed,

Extractor
Scale: 4.5 :1

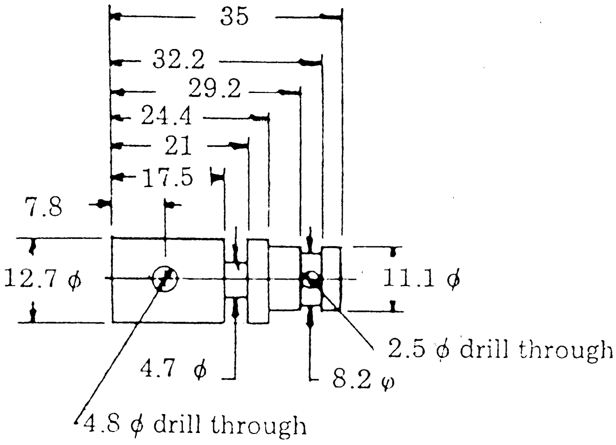
Material: AISI 1040 or equiv., stock 4.7 wide
harden to: Rc 48-52



Bolt handle
Scale: .87:1
Material : mild steel
Heat treat: none

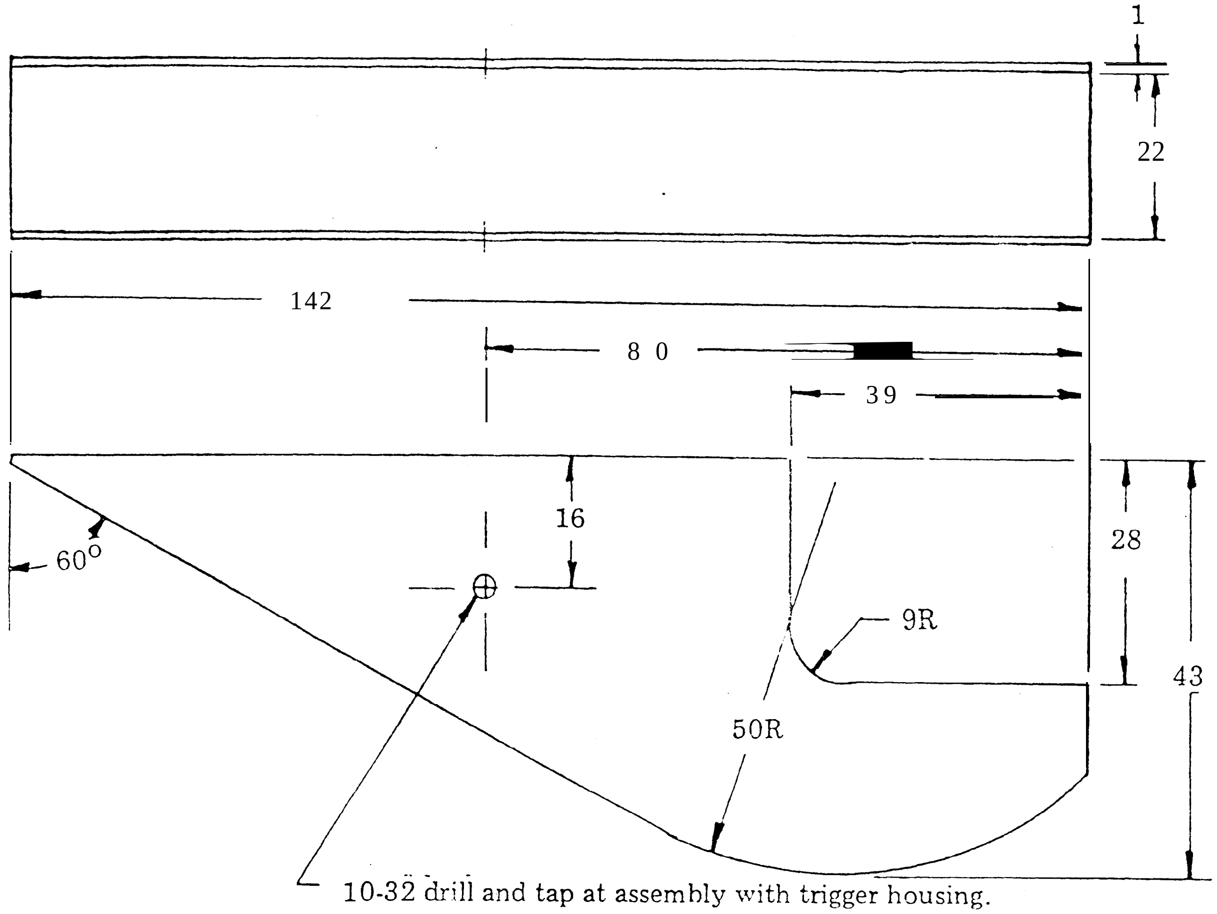


Selector
Scale: .87:1
Material: mild steel
Heat treat : none

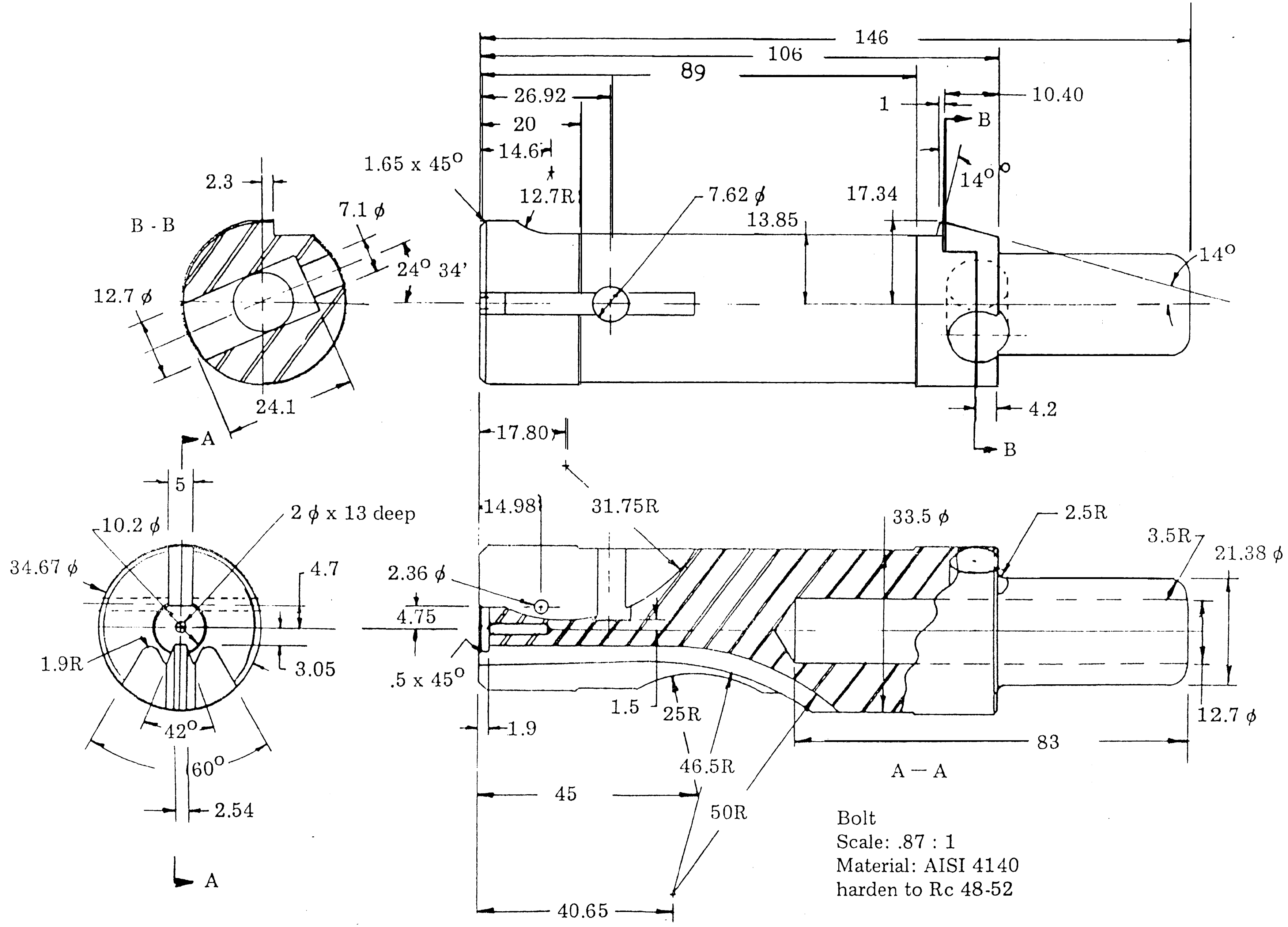


Trigger housing cover
Material: 1mm stock, formed
Required: 1

Scale: 1:1

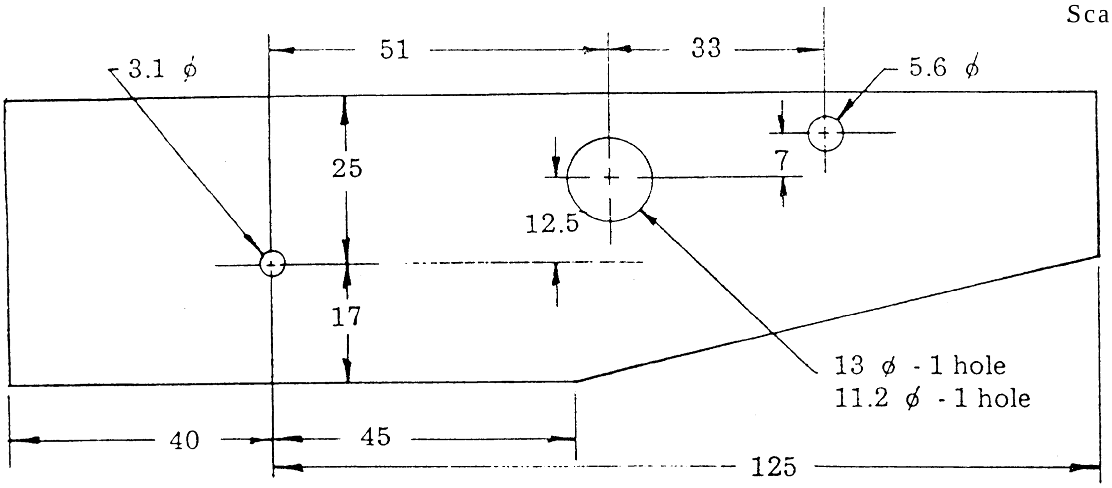


All Sten screws are 10-32 thread, round head type. Trigger housing screws (2) are 13mm long.

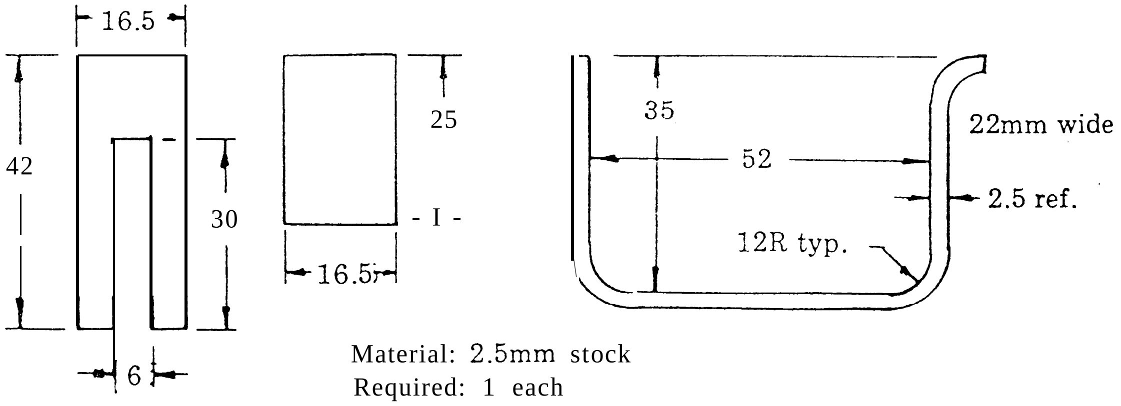


Bolt
Scale: .87 : 1
Material: AISI 4140
harden to Rc 48-52

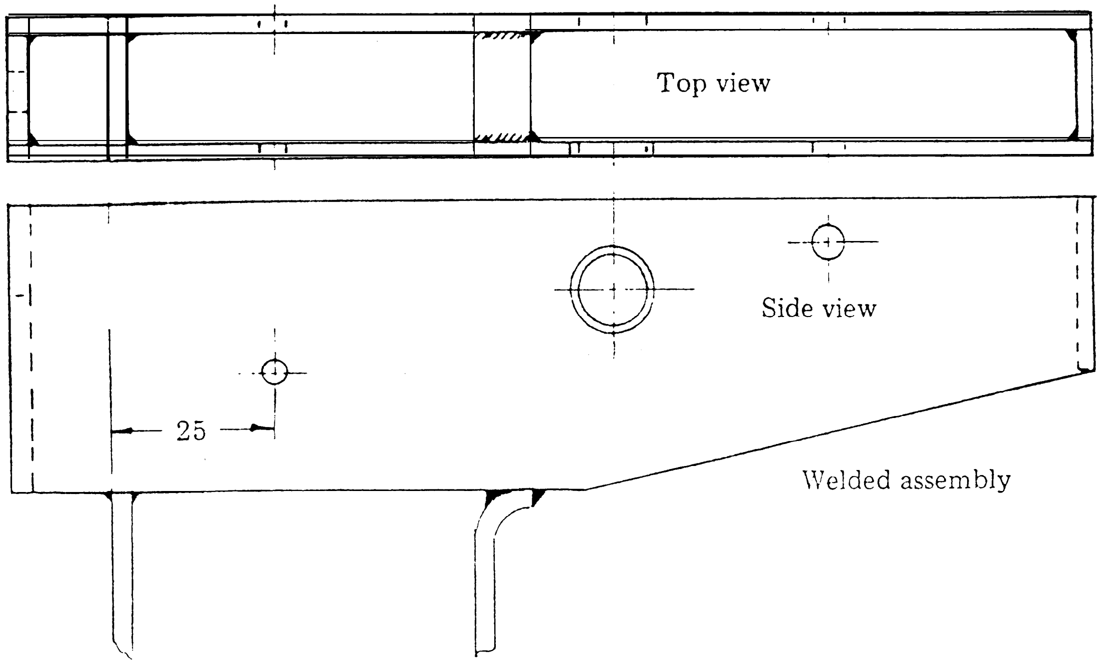
Trigger housing
Scale: .87:1

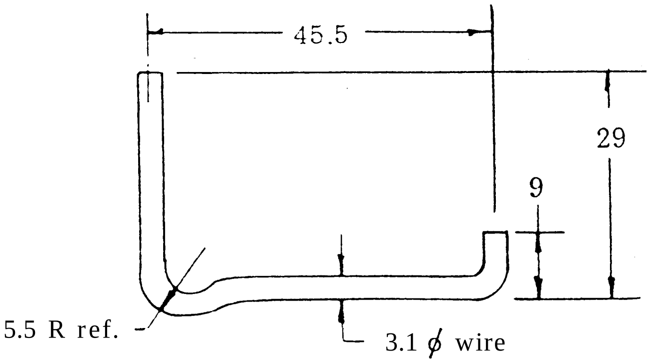


Material: 2.5mm stock
Rewired: 2



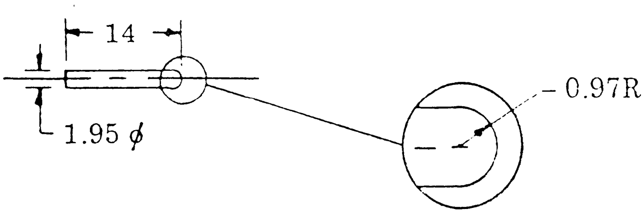
Material: 2.5mm stock
Required: 1 each





Trigger pin

Note: Trigger pin may be substituted by spring pin 3.1 ϕ by 26 long.



Firing pin
Material: Drill rod
Harden to Rc 50

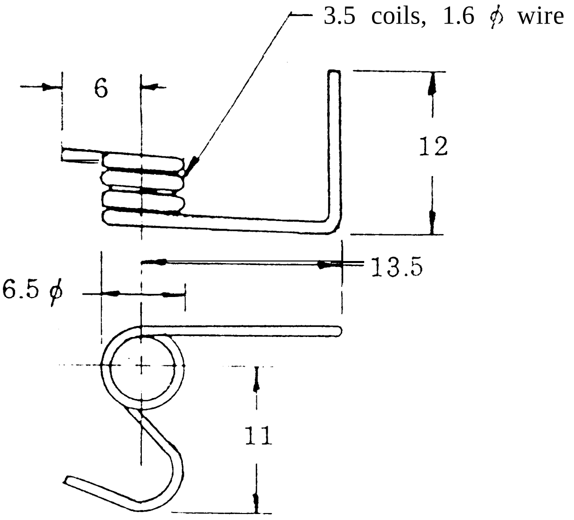
PINS (Spring pins)

USE	DIAMETER	LENGTH
Extractor	2.5	25
Sear	5.5	24

SPRINGS

USE	Wire dia.	Coil OD	Free length	Number of coils	Coil ends	SUBSTITUTE":
Extractor	1	7.1	12	5.5	Sq.	LC-040C-4
Magazine latch	1	8.7	15.5	6	Gr.	LC-040C-6
Closing	1.6	26.5	245	17	Sq.	
Trigger	0.7	4.6	57	72	Extension spring loops	LE-026B-7 or LE-026C-8
Selector	0.45	4.6	14	8	Gr.	LC-018B-6
Barrel sleeve latch	1	8.7	35	15	Sq.	

Sear spring, formed
substitute LT-059K-1-R



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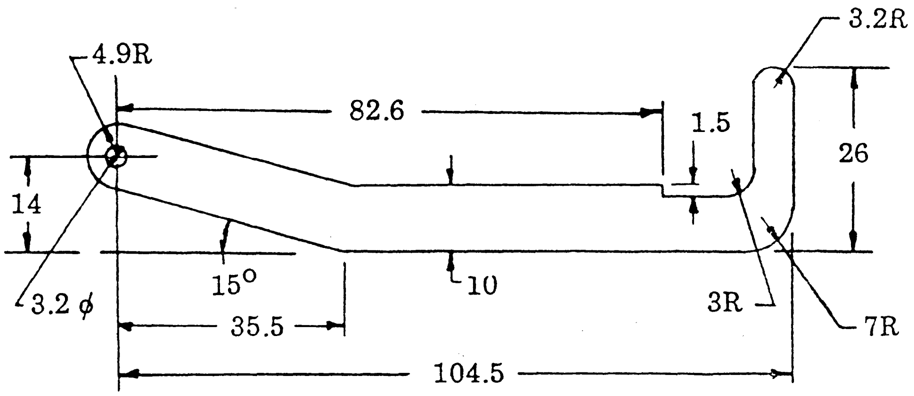
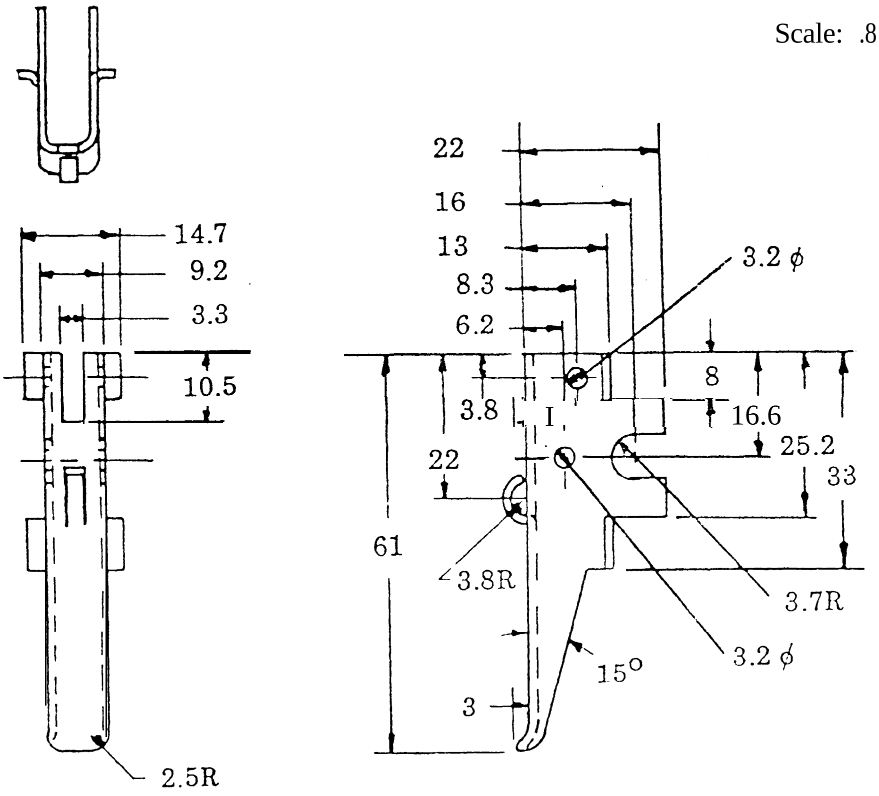
Scale: .87 : 1

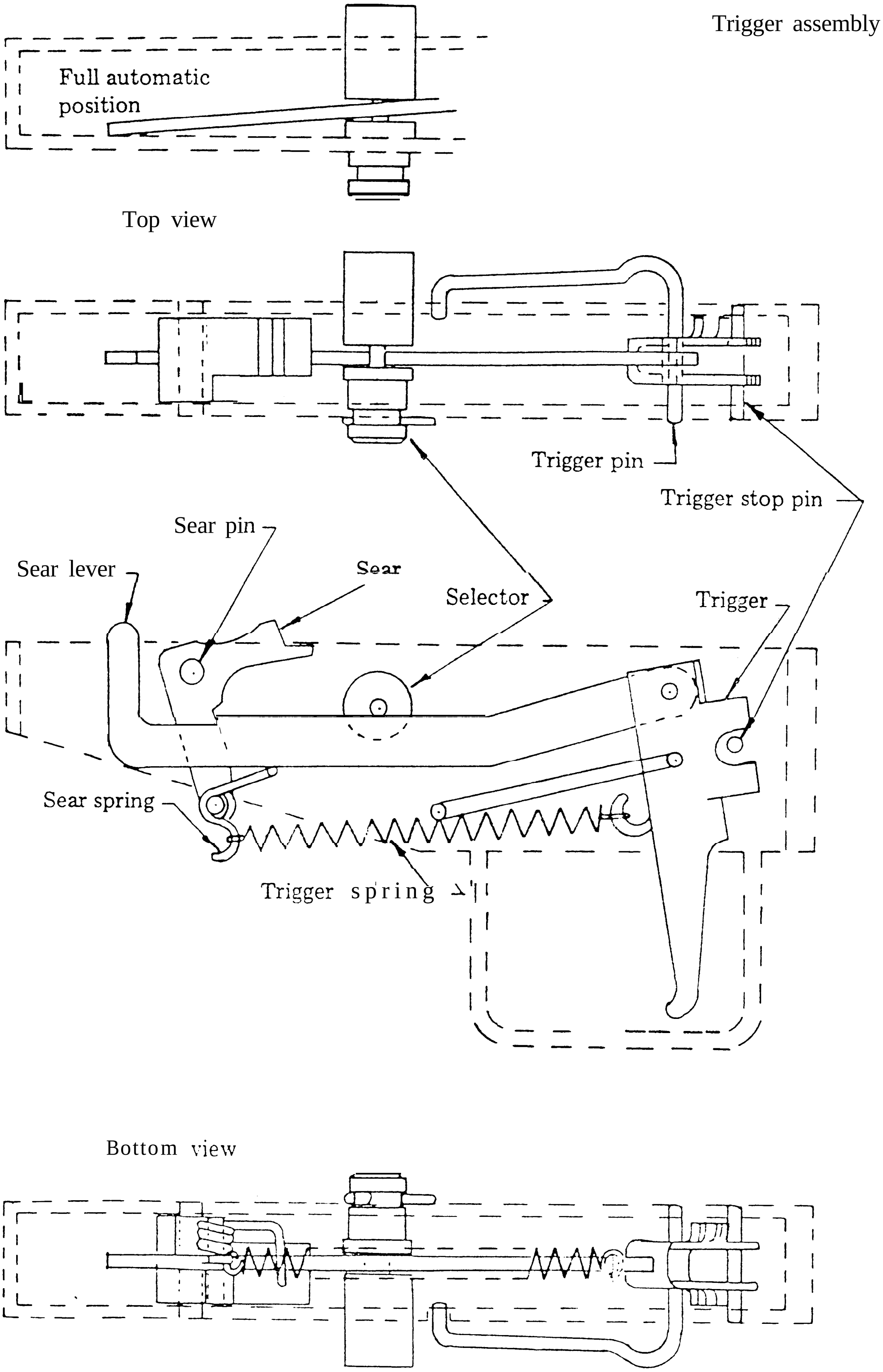


Trigger
Material: AISI 1010 or equivalent,,
1.6mm stock
Heat treat: none

Scale: .87 : 1

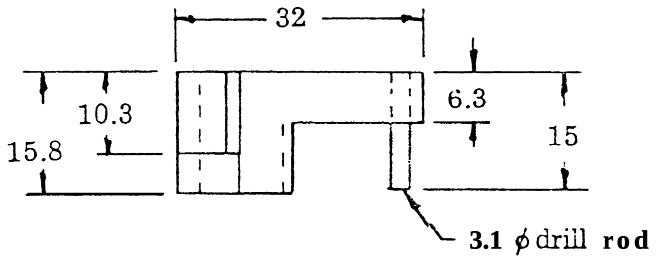


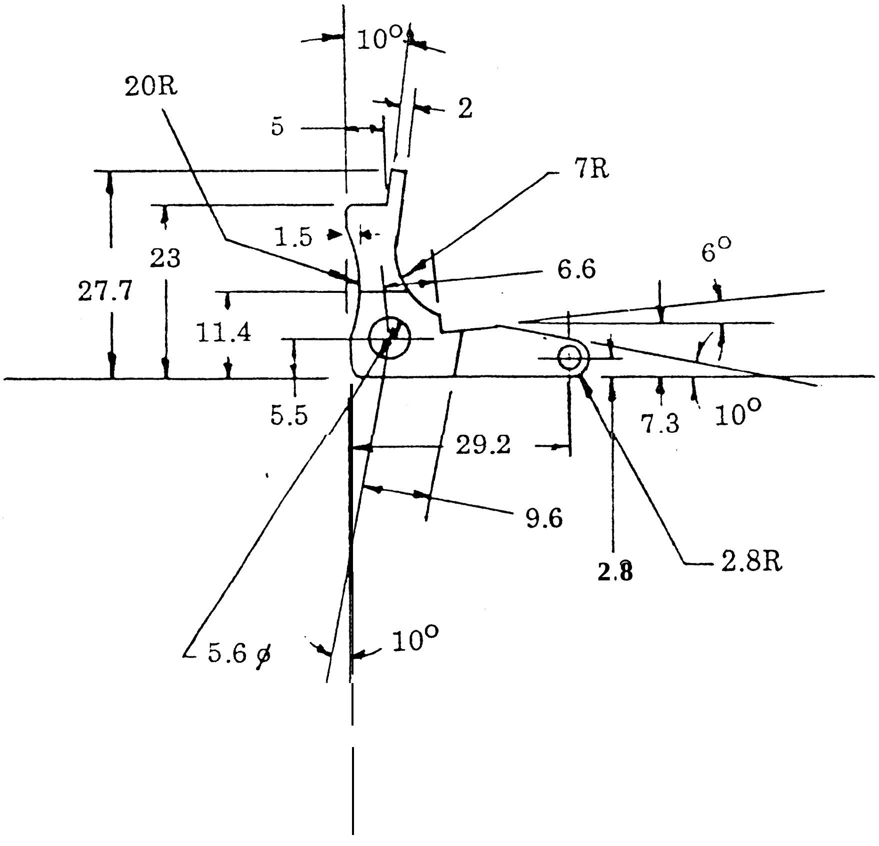
Trigger assembly



Sear
Material: AISI 4140 or equivalent
Harden to Rc 55

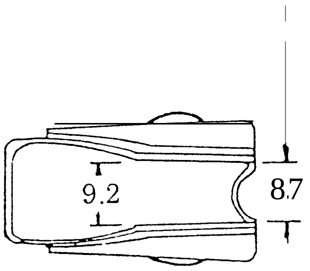
Scale: 1:1





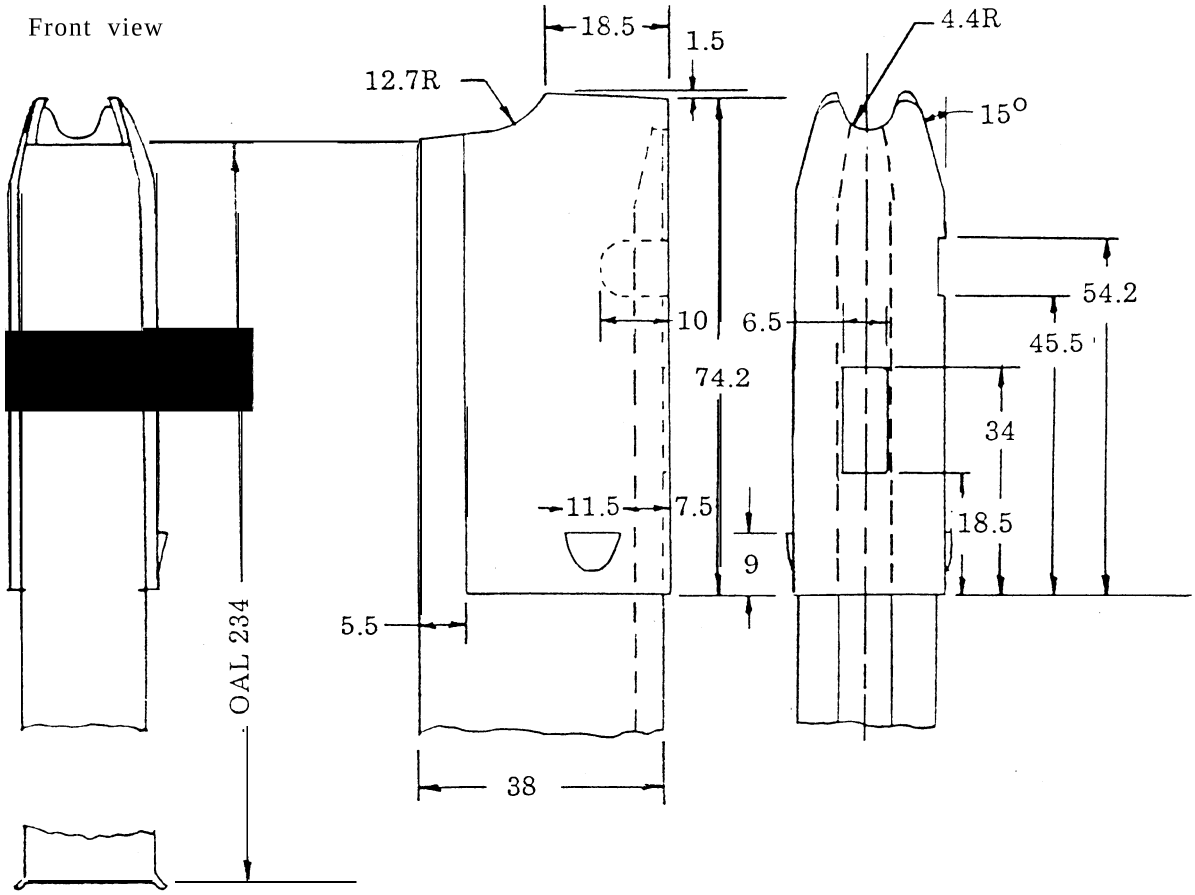
Magazine
Material: 1mm steel stock

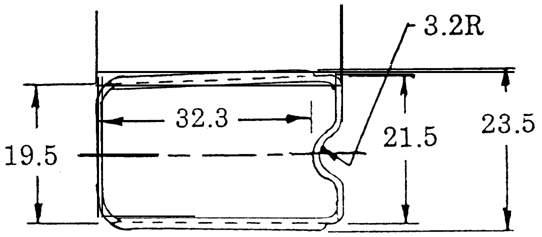
Top view



Front view

Rear view

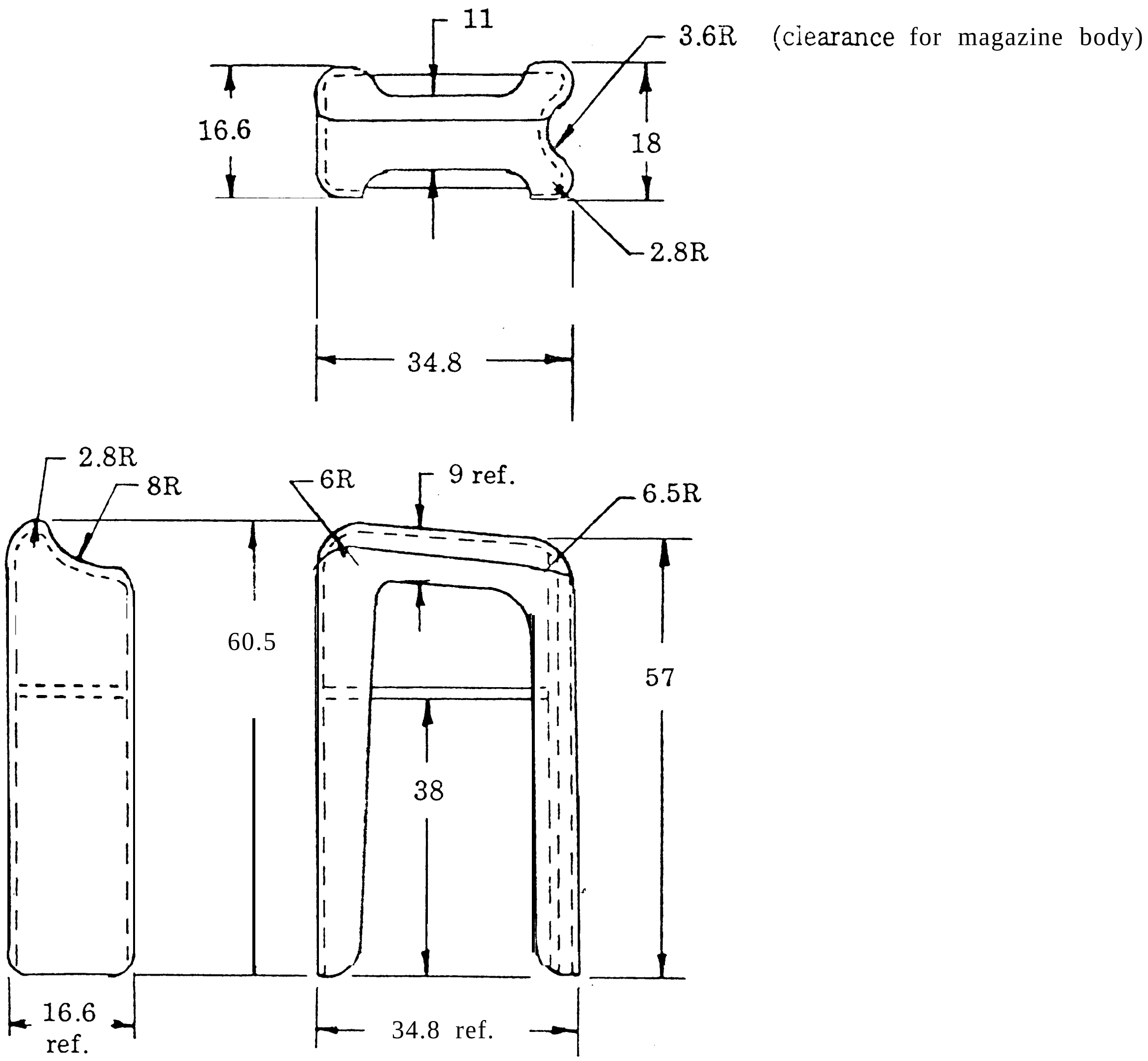




Bottom view

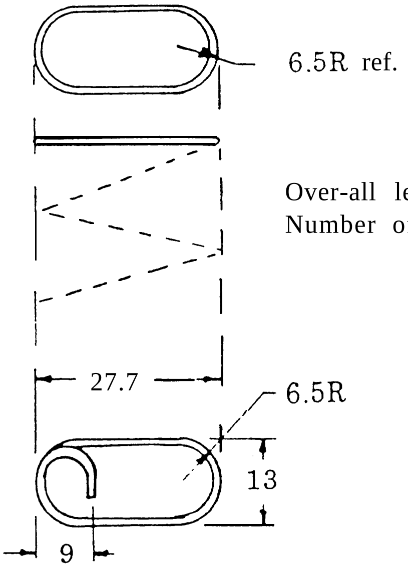
Magazine follower
Material: low carbon steel

Scale: 1:1



Note: The magazine follower is a complex stamping made on a progressive die. To make a follower in a simpler way is to follow the Degtyarev DP LMG approach — using a dummy round as the last one in the magazine. Thus a simple, flat follower with a dummy round soldered and/or screwed to it will replace a complicated stamping.

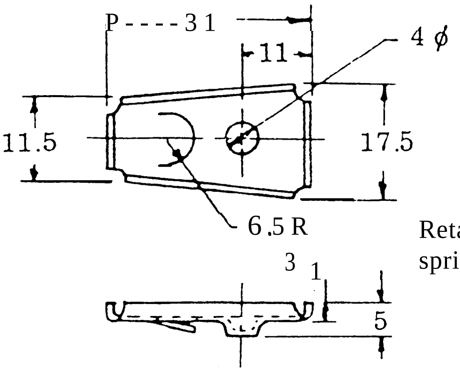
Magazine spring
Material: Music wire 1.5mm dia.



Over-all length: 313
Number of.coils: 26

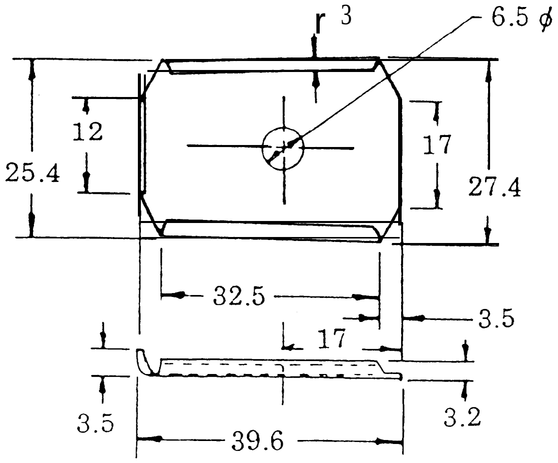
Scale: .87:1

Magazine bottom retainer
Material: 1mm mild steel



Retaining lip bent over magazine spring tab at assembly

Magazine bottom plate
Material: 1mm mild steel



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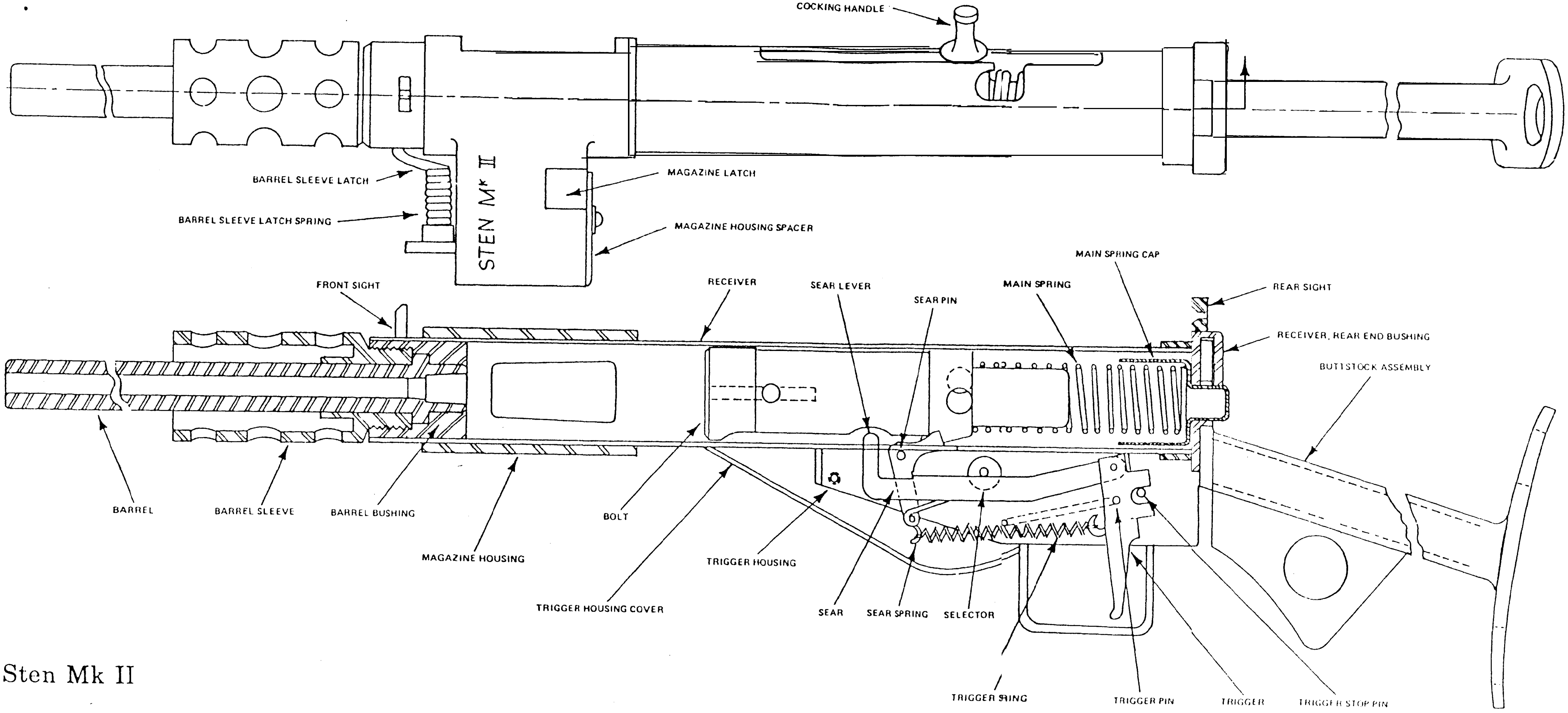
COCKING HANDLE
BARREL SLEEVE LATCH
BARREL SLEEVE LATCH SPRING
STEN Mk II
MAGAZINE LATCH
MAGAZINE HOUSING SPACER
MAIN SPRING CAP
FRONT SIGHT
RECEIVER
SEAR LEVER
SEAR PIN
MAIN SPRING
REAR SIGHT
RECEIVER, REAR END BUSHING
BUTTSTOCK ASSEMBLY
BARREL
BARREL SLEEVE
BARREL BUSHING
BOLT
MAGAZINE HOUSING
TRIGGER HOUSING
TRIGGER HOUSING COVER
SEAR
SEAR SPRING
SELECTOR
TRIGGER SRING
TRIGGER PIN
TRIGGER
TRIGGER STOP PIN

Sten Mk II